SEQUENCE LISTING

<110> Keio University	
<120> HUMANIN, A POLYPEPTIDE SUPPRESSING NEURONAL DEATH	
<130> KUV-102DP1PCT1	
<140> <141>	
<150> JP 1999-264679 <151> 1999-09-17 <150> JP 2000-201456 <151> 2000-06-29	
<160> 60	
<170> PatentIn Ver. 2.0	
<210> 1 <211> 85 <212> DNA <213> Artificial Sequence	
<pre><220> <223> Description of Artificial Sequence: artificially synthesized sequence</pre>	
<pre><400> 1 aattcaccat ggctccacga gggttcagct gtctcttact tttaaccagt gaaattgacc tgcccgtgaa gaggcgggca ggtac</pre>	6(88
<210> 2 <211> 77 <212> DNA <213> Artificial Sequence	
<pre><220> <223> Description of Artificial Sequence: artificially synthesized sequence</pre>	
<pre><400> 2 ctgcccgcct cttcacgggc aggtcaattt cactggttaa aagtaagaga cagctgaacc 6 ctcgtggagc catggtg</pre>	30 77

43

<210> 3 <211> 79	
<pre><212> DNA </pre>	
<pre><213> Artificial Sequence</pre>	
<pre><220> <223> Description of Artificial Sequence: artificially synthesized sequence</pre>	
<400> 3	
ctgcccgcct cttcacgggc aggtcaattt cactggttaa aagtaagaga cagctgaacc	60 79
⟨210⟩ 4	
<211> 75	
<212> DNA (213) Home depicts	
<213> Homo sapiens	
<220>	
<221> CDS <222> (1) (72)	
<pre><400> 4 atg gct cca cga ggg ttc agc tgt ctc tta ctt tta acc agt gaa att 4</pre>	18
Met Ala Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile	10
1 5 10 15	
gac ctg ccc gtg aag agg cgg gca tga	75
Asp Leu Pro Val Lys Arg Arg Ala	
20	
<210> 5	
<211> 24 <212> PRT	
<pre><213> Homo sapiens</pre>	
<400> 5	
Met Ala Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile	
1 5 10 15	
Asp Leu Pro Val Lys Arg Arg Ala 20	
/210\ 6	
<210> 6 <211> 34	
<212> PRT	
<213> Artificial Sequence	

<220>

<223> Description of Artificial Sequence: artificially synthesized sequence (sHN-FLAG)

<400> 6

Met Ala Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile 10

Asp Leu Pro Val Lys Arg Arg Ala Gly Thr Asp Tyr Lys Asp Asp Asp

Asp Lys

<210> 7

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificially synthesized sequence (HNR)

<400> 7

Met Ala Pro Arg Gly Phe Ser Cys Arg Leu Leu Leu Thr Ser Glu Ile 10

Asp Leu Pro Val Lys Arg Arg Ala

<210> 8

(211) 24

<212> PRT

<213> Artificial Sequence

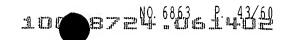
<220>

<223> Description of Artificial Sequence: artificially synthesized sequence (HNG)

<400> 8

Met Ala Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Gly Glu Ile 15

Asp Leu Pro Val Lys Arg Arg Ala 20



<210> 9 <211> 24 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence (HNA) <400> 9 Met Ala Pro Arg Gly Phe Ser Ala Leu Leu Leu Leu Thr Ser Glu Ile 1 5 15 Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 10 <211> 24 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence <400> 10 Met Ala Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile 1 5 10 15 Asp Leu Pro Val Ala Ala Ala Ala 20 <210> 11. ⟨211⟩ 19 <212> DNA <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially

<400> 11

gg~tgttgag cttgaacgc

synthesized sequence

19

<210> 12

<211> 23

<212> PRT

<211> 20

```
<213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: artificially
       synthesized sequence (deltaN1-Humanin)
 <400> 12
Ala Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile Asp
  1
                   5
                                                           15
Leu Pro Val Lys Arg Arg Ala
              20
<210> 13
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
       synthesized sequence (deltaN2-Humanin)
Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile Asp Leu
                   5
  1
                                                           15
Pro Val Lys Arg Arg Ala
              20
<210> 14
<211> 21
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence (deltaN3-Humanin)
⟨400⟩ 14
Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile Asp Leu Pro
  1
                  5
                                      10
                                                           15
Val Lys Arg Arg Ala
             20
<210> 15
```

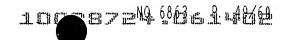
```
<212> PRT
(213) Artificial Sequence
<220>
(223) Description of Artificial Sequence: artificially
       synthesized sequence (deltaN4-Humanin)
<400> 15
Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile Asp Leu Pro Val
  1
                   5
                                      10
Lys Arg Arg Ala
<210> 16
<211> 19
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
       synthesized sequence (deltaN5-Humanin)
<400> 16
Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile Asp Leu Pro Val Lys
  1
                   5
                                      10
                                                           15
Arg Arg Ala
<210> 17
<211> 18
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence (deltaN6-Humanin)
<400> 17
Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile Asp Leu Pro Val Lys Arg
  1
                                                           15
Arg Ala
<210> 18
```

```
(211) 17
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
       synthesized sequence (deltaN7-Humanin)
<400> 18
Cys Leu Leu Leu Thr Ser Glu Ile Asp Leu Pro Val Lys Arg Arg
                                      10
Ala
⟨210⟩ 19
<211> 16
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence (deltaN8-Humanin)
<400> 19
Leu Leu Leu Leu Thr Ser Glu Ile Asp Leu Pro Val Lys Arg Arg Ala
  1
<210> 20
<211> 16
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence (deltaN2 deltaC6-Humanin)
<400> 20
Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile Asp Leu
<210> 21
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
```

8/21

<223> Description of Artificial Sequenc : artificially synthesized sequence (deltaN2 deltaC5-Humanin: HN-17) <400> 21 Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile Asp Leu Pro <210> 22 <211> 18 <212> PRT (213) Artificial Sequence ⟨220⟩ <223> Description of Artificial Sequence: artificially synthesized sequence (deltaN2 deltaC4-Humanin) **<400> 22** Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile Asp Leu 1 15 10 Pro Val <210> 23 <211> 20 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence (deltaC4-Humanin) Met Ala Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ser Glu Ile 1 5 15 Asp Leu Pro Val 20 <210> 24 <211> 17 <212> PRT <213> Artificial Sequence

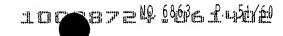
```
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence (HNG-17)
<400> 24
Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Gly Glu Ile Asp Leu
                   5
                                      10
Pro
<210> 25
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence
<400> 25
Ala Arg Gly Phe Ser Cys Leu Leu Leu Thr Gly Glu Ile Asp Leu
  1
                   5
                                      10
                                                           15
Pro
<210> 26
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence
<400> 26
Pro Ala Gly Phe Ser Cys Leu Leu Leu Leu Thr Gly Glu Ile Asp Leu
  1
                                      10
                                                          15
Pro
<210> 27
<211> 17
<212> PRT
<213> Artificial Sequence
```



```
<220>
<223> Description of Artificial Sequence: artificially
       synthesized sequence
<400> 27
Pro Arg Ala Phe Ser Cys Leu Leu Leu Leu Thr Gly Glu Ile Asp Leu
                                       10
Pro
<210> 28
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence
<400> 28
Pro Arg Gly Ala Ser Cys Leu Leu Leu Leu Thr Gly Glu Ile Asp Leu
                                      10
Pro
<210> 29
<211> 17
<212> PRT
<213> Artificial Sequence
⟨220⟩
<223> Description of Artificial Sequence: artificially
      synthesized sequence
(400) 29
Pro Arg Gly Phe Ala Cys Leu Leu Leu Leu Thr Gly Glu Ile Asp Leu
Pro
<210> 30
<211> 17
<212> PRT
```

```
<213> Artificial Sequence
<220>
(223) Description of Artificial Sequence: artificially
       synthesized sequence
<400> 30
Pro Arg Gly Phe Ser Ala Leu Leu Leu Leu Thr Gly Glu Ile Asp Leu
Pro
<210> 31
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence
<400> 31
Pro Arg Gly Phe Ser Cys Ala Leu Leu Thr Gly Glu Ile Asp Leu
  1
                                      10
                                                          15
Pro
<210> 32
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
(223) Description of Artificial Sequence: artificially
      synthesized sequence
Pro Arg Gly Phe Ser Cys Leu Ala Leu Leu Thr Gly Glu Ile Asp Leu
                  5
                                                          15
Pro
<210> 33
<211> 17
```

<210> 36



```
<212> PRT
 (213) Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: artificially
       synthesized sequence
 <400> 33
 Pro Arg Gly Phe Ser Cys Leu Leu Ala Leu Thr Gly Glu Ile Asp Leu
                                       10
Pro
 (210) 34
 <211> 17
 <212> PRT
 <213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
       synthesized sequence
<400> 34
Pro Arg Gly Phe Ser Cys Leu Leu Leu Ala Thr Gly Glu Ile Asp Leu
                                       10
                                                           15
Pro
<210> 35
<211> 17
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence
<400> 35
Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Ala Gly Glu Ile Asp Leu
                                      10
Pro
```

<211> 17 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence <400> 36 Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Ala Glu Ile Asp Leu Pro <210> 37 <211> 17 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence <400> 37 Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Gly Ala Ile Asp Leu Pro <210> 38 <211> 17 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Gly Glu Ala Asp Leu 5 15 Pro

```
<210> 39
 <211> 17
 <212> PRT
 <213> Artificial Sequence
 ⟨220⟩
 (223) Description of Artificial Sequence: artificially
       synthesized sequence
 <400> 39
 Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Gly Glu Ile Ala Leu
   1
                                       10
Pro
 <210> 40
 <211> 17
 <212> PRT
 <213> Artificial Sequence
⟨220⟩
(223) Description of Artificial Sequence: artificially
       synthesized sequence
<400> 40
Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Gly Glu Ile Asp Ala
  1
                   5
                                       10
                                                           15
Pro
<210> 41
(211) 17
<212> PRT
<213> Artificial Sequence
<220>
(223) Description of Artificial Sequence: artificially
      synthesized sequence
<400> 41
Pro Arg Gly Phe Ser Cys Leu Leu Leu Leu Thr Gly Glu Ile Asp Leu
  1
                  5
                                      10
                                                           15
Ala
```

<210> 42 <211> 24 <212> PRT <213> Artificial Sequence <220> (223) Description of Artificial Sequence: artificially synthesized sequence **<400> 42** Met Ala Pro Arg Gly Phe Ser Asp Leu Leu Leu Leu Thr Gly Glu Ile 10 Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 43 ⟨211⟩ 24 <212> PRT <213> Artificial Sequence <220> (223) Description of Artificial Sequence: artificially synthesized sequence <400> 43 Met Ala Pro Arg Gly Phe Ser Glu Leu Leu Leu Leu Thr Gly Glu Ile Asp Leu Pro Val Lys Arg Arg Ala <210> 44 <211> 24 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence **<400> 44** Met Ala Pro Arg Gly Phe Ser Phe Leu Leu Leu Leu Thr Gly Glu Ile 5 Asp Leu Pro Val Lys Arg Arg Ala

20

<210> 45

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificially
 synthesized sequence

<400> 45

Met Ala Pro Arg Gly Phe Ser Gly Leu Leu Leu Leu Thr Gly Glu Ile 1 5 10 15

Asp Leu Pro Val Lys Arg Arg Ala

<210> 46

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificially synthesized sequence

<400> 46

Met Ala Pro Arg Gly Phe Ser His Leu Leu Leu Leu Thr Gly Glu Ile
1 5 10 15

Asp Leu Pro Val Lys Arg Arg Ala 20

<210> 47

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificially synthesized sequence

<400> 47

Met Ala Pro Arg Gly Phe Ser Ile Leu Leu Leu Leu Thr Gly Glu Ile 1 5 10 15

Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 48 (211) 24 <212> PRT <213> Artificial Sequence <220> (223) Description of Artificial Sequence: artificially synthesized sequence **<400> 48** Met Ala Pro Arg Gly Phe Ser Lys Leu Leu Leu Leu Thr Gly Glu Ile 5 10 1 Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 49 <211> 24 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence <400> 49 Met Ala Pro Arg Gly Phe Ser Leu Leu Leu Leu Leu Thr Gly Glu Ile Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 50 <211> 24 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence <400> 50 Met Ala Pro Arg Gly Phe Ser Met Leu Leu Leu Leu Thr Gly Glu Ile

```
Asp Leu Pro Val Lys Arg Arg Ala
<210> 51
<211> 24
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence
<400> 51
Met Ala Pro Arg Gly Phe Ser Asn Leu Leu Leu Leu Thr Gly Glu Ile
                                      10
Asp Leu Pro Val Lys Arg Arg Ala
              20
<210> 52
<211> 24
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence
<400> 52
Met Ala Pro Arg Gly Phe Ser Pro Leu Leu Leu Leu Thr Gly Glu Ile
                                      10
Asp Leu Pro Val Lys Arg Arg Ala
             20
<210> 53
<211> 24
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: artificially
      synthesized sequence
<400> 53
Met Ala Pro Arg Gly Phe Ser Gln Leu Leu Leu Leu Thr Gly Glu Ile
```

<400> 56

19/21

1 5 10 15 Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 54 <211> 24 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence **<400> 54** Met Ala Pro Arg Gly Phe Ser Arg Leu Leu Leu Leu Thr Gly Glu Ile 1 5 10 15 Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 55 <211> 24 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence <400> 55 Met Ala Pro Arg Gly Phe Ser Ser Leu Leu Leu Leu Thr Gly Glu Ile 1 5 10 15 Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 56 <211> 24 <212> PRT <213> Artificial Sequence <220> (223) Description of Artificial Sequence: artificially synthesized sequence



Met Ala Pro Arg Gly Phe Ser Thr Leu Leu Leu Leu Thr Gly Glu Ile 10 15 Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 57 (211) 24 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence <400> 57 Met Ala Pro Arg Gly Phe Ser Val Leu Leu Leu Thr Gly Glu Ile 10 Asp Leu Pro Val Lys Arg Arg Ala 20 <210> 58 **<211> 24** <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence **<400> 58** Met Ala Pro Arg Gly Phe Ser Trp Leu Leu Leu Leu Thr Gly Glu Ile 10 Asp Leu Pro Val Lys Arg Arg Ala <210> 59 <211> 24 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: artificially synthesized sequence

<400> 59

Met Ala Pro Arg Gly Phe Ser Tyr Leu Leu Leu Leu Thr Gly Glu Ile 1 5 10 15

Asp Leu Pro Val Lys Arg Arg Ala 20

<210> 60

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: artificially
 synthesized sequence (AGA-HN)

<400> 60

Met Ala Pro Ala Gly Ala Ser Cys Leu Leu Leu Leu Thr Gly Glu Ile 1 5 10 15

Asp Leu Pro Val Lys Arg Arg Ala 20